

Title (en)

Hearing device with brain-wave dependent audio processing

Title (de)

Hörgerät mit himnwellenabhängiger Audioverarbeitung

Title (fr)

Dispositif d'aide auditive avec un traitement audio dépendant des ondes cérébrales

Publication

**EP 2717597 A1 20140409 (EN)**

Application

**EP 12190377 A 20121029**

Priority

- EP 12187625 A 20121008
- EP 12190377 A 20121029

Abstract (en)

Hearing device (1) arranged on or at least partly implanted in an individual's head and comprising: an input means (3,4,5,6) providing one or more input audio signals; a signal processing circuit (7,8) to process at least one of said one or more input audio signals to provide a processed audio signal; an output means (10) to provide an audible signal to the individual in dependence on the processed audio signal; two or more electrodes (13,14,20) to detect electric brain potentials of the individual; and a brain-wave measurement circuit (15,21,25) to determine one or more EEG signals from electric signals received from the two or more electrodes (13,14,20), wherein the hearing device (1) further comprises: a first spectrum analyser (11,12) to repeatedly determine first audio spectra of at least one signal from the group of signals consisting of said one or more audio input signals and the audible signal; a reconstructor (16) to repeatedly reconstruct second audio spectra from the one or more EEG signals; a first correlator (17,18) to repeatedly determine a first coherence between the first and the second audio spectra; and a control unit (19) to alter said processing in dependence on the first coherence.

IPC 8 full level

**H04R 25/00** (2006.01)

CPC (source: EP US)

**A61B 5/377** (2021.01 - US); **H04R 25/50** (2013.01 - US); **H04R 25/70** (2013.01 - EP US); **A61B 5/121** (2013.01 - US); **A61B 5/38** (2021.01 - US); **A61B 5/68** (2013.01 - US); **A61B 5/6815** (2013.01 - US); **A61N 1/0541** (2013.01 - US); **G06F 3/015** (2013.01 - US); **H04R 2225/41** (2013.01 - EP US)

Citation (applicant)

- WO 2011006681 A1 20110120 - WIDEX AS [DK], et al
- N. MESGARANI; E. F. CHANG, NATURE, vol. 485, pages 233 - 236
- PASLEY ET AL.: "Reconstructing Speech from Human Auditory Cortex", PLOS BIOLOGY, vol. 10, no. 1, January 2012 (2012-01-01), pages E1001252

Citation (search report)

- [X1] JP 2010082375 A 20100415 - KANAZAWA INST OF TECHNOLOGY
- [A] WO 2011006681 A1 20110120 - WIDEX AS [DK], et al
- [A] WO 2012103940 A1 20120809 - WIDEX AS [DK], et al
- [A] WO 2012095171 A1 20120719 - WIDEX AS [DK], et al

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EP3537726B1; EP2813175A2; EP3917167A2; EP2717597B1; EP2717597B2

Designated contracting state (EPC)

AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

Designated extension state (EPC)

BA ME

DOCDB simple family (publication)

**EP 2560412 A1 20130220**; CN 103716744 A 20140409; CN 103716744 B 20191029; DK 2717597 T3 20200824; DK 2717597 T4 20230911; EP 2717597 A1 20140409; EP 2717597 B1 20200624; EP 2717597 B2 20230809; US 2014098981 A1 20140410; US 9432777 B2 20160830

DOCDB simple family (application)

**EP 12187625 A 20121008**; CN 201310465320 A 20131008; DK 12190377 T 20121029; EP 12190377 A 20121029; US 201314048883 A 20131008